

WHAT IS CLAIMED IS:

1. A cooling channel cover for a one-piece piston of an internal combustion engine, the piston having a closed cooling channel that runs around inside a piston crown, at a level of a piston ring band, and a ring-shaped recess provided between the piston ring band and a piston shaft, wherein the piston shaft is connected with the piston hubs suspended on the piston crown, the cooling channel cover comprising a one-piece plastic ring having the following characteristics:

a U-shaped cross-section;

a ring bottom;

an outer shank around a circumference of the ring and being molded onto the ring bottom and angled off radially to the outside;

an inner shank around the circumference of the ring and being angled off radially to the inside;

a first radial division having a mouth width; and

a film hinge for radial deflection of the outer shank of the plastic ring, the film hinge being formed by a second radial division, opposite the first division, on the circumference, wherein the second radial division does not separate the outer shank that runs around the circumference, to form the film hinge.

2. The cooling channel cover according to claim 1, wherein the film hinge is determined by a material thickness of the outer shank.

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3. The cooling channel cover according to claim 1,  
wherein slits that extend <sup>close</sup> to the ring bottom are made in the outer  
and inner shanks, said slits being non-uniformly distributed over  
the circumference of the ring, in order to produce a plurality of  
shanks having different ridge lengths.

4. The cooling channel cover according to claim 3,  
wherein the film hinge is arranged in a region between the slits.

5. The cooling channel cover according to claim 3,  
wherein the slits have a width of 2 to 3 mm and the ridge lengths  
between the slits are 15 to 20 mm.

6. The cooling channel cover according to claim 1,  
wherein the first radial division having the mouth width forms a  
cooling oil inlet or a cooling oil outlet for the cooling channel.

7. The cooling channel cover according to claim 1,  
wherein the U-shaped ring is made of polyphenylene sulfide (PPS) or  
a polyimide (PI).

8. A one-piece piston of an internal combustion  
engine, comprising:

a piston crown;

a closed cooling channel that runs around inside  
the piston crown, at a level of a piston ring band;

a piston shaft connected to the piston crown via

piston hubs suspended on the piston crown;

a ring-shaped recess provided between the piston ring band and the piston shaft; and

a cooling channel cover comprising a one-piece plastic ring having the following characteristics:

a U-shaped cross-section;

a ring bottom;

an outer shank around a circumference of the ring and being molded onto a ring bottom and angled off radially to the outside;

an inner shank around the circumference of the ring and being angled off radially to the inside;

a first radial division having a mouth width;

and

a film hinge for radial deflection of the outer shank of the plastic ring, the film hinge being formed by a second radial division, opposite the first division, on the circumference, wherein the second radial division does not separate the outer shank that runs around the circumference, to form the film hinge.

9. The cooling channel cover according to claim 8, wherein the film hinge is determined by a material thickness of the outer shank.

10. The cooling channel cover according to claim 8, wherein the outer shank is arranged on an outside circumference of

the piston crown and is angled off radially to the outside, with reference to a crosswise piston axis, and wherein the inner shank is arranged on an inside circumference of the piston head and is angled off radially to the inside.

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11. The cooling channel cover according to claim 10,  
wherein slits that extend<sup>close</sup> to the ring bottom are made in the outer and inner shanks, said slits being non-uniformly distributed over the circumference of the ring, in order to produce a plurality of shanks having different ridge lengths.

12. The cooling channel cover according to claim 11,  
wherein the film hinge is arranged in a region between the slits.

13. The cooling channel cover according to claim 11,  
wherein the slits have a width of 2 to 3 mm and the ridge lengths between the slits are 15 to 20 mm.

14. The cooling channel cover according to claim 8,  
wherein the first radial division having the mouth width forms a cooling oil inlet or a cooling oil outlet for the cooling channel.

15. The cooling channel cover according to claim 8,  
wherein the U-shaped ring is made of polyphenylene sulfide (PPS) or a polyimide (PI). Or <sup>Carbon</sup> Spring Steel.

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